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•Commentary•

Pesticides availability and medically serious suicide attempts in China

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The case-control study of attempted suicide by Jiang and colleagues[1] that appeared in the last issue of the *Shanghai Archives of Psychiatry*, reminds us of the many peculiarities and differences in suicidal behavior around the world. The study examined characteristics of medically serious suicide attempters (defined as individuals with a hospital admission longer than 6 hours) in a rural part of Shandong Province, China. Data collection for the study was not recent: it goes back to 1998-2000. The authors report that suicide trends in China have been declining significantly in the last decade, both in rural and metropolitan areas;[2] however, suicidal behavior in the countryside has largely maintained its distinctive patterns and is more closely aligned with traditional values because of the slower pace of modernization in rural areas.[3] Thus, the article should still constitute a reliable source of information, despite the rapidly changing Chinese landscape.

Important features of the paper are the size of its sample (*n*=297), the presence of carefully selected controls (matched by age and gender), the selection of serious suicide attempters, so defined by the time interval between admission and hospital discharge (at least six hours). Another strength of the study is that family members and associates of both the persons who had attempted suicide and of the control group participants were independently interviewed and, thus, provided valuable additional information to the investigation.

Especially due to the efforts of Michael Phillips[4-6] (the corresponding author for the paper), the world of suicidology has become aware of a number of particular aspects of suicidal behaviors in China.[7,8] For example, we are now familiar with the fact that suicide rates are higher in rural environments; that those rates can be exceptionally high in women, making rural China the place in the world where suicide is more frequent in females than in males; that pesticides ingestion is the most common method of suicide; that impulsivity is alarmingly common in those who exhibit suicidal behaviors; and that where pesticides are readily available (as in rural areas), non-meditated suicidal acts using high-toxicity pesticides can prove fatal if technically sophisticated resuscitation facilities are not easily accessible.

However, the most striking and puzzling difference between Chinese suicide cases and those from western countries is probably the relative importance of mood disorders and other psychopathological conditions as determinants of suicidal behavior. Mental illness is virtually omnipresent in western literature as a proximal risk factor for suicide,[8] but its role in Asia, especially in Chinese and Indian cases, appears to be less relevant.[9-11] This implies that in at least one third of all suicide deaths around the globe psychiatric disorders do not represent the most relevant risk factor.

The *primum movens* of the article by Jiang and colleagues was to clarify what is behind serious suicide attempts in rural China.[1] Whilst the severity of the act in the paper is only qualified through the length of stay in hospital (no clinical procedures or measures of level of coma are mentioned), the identified sample appears to be satisfactorily homogeneous. In fact, some level of suicide intention is present in all of the individuals in the experimental group; this confers weight to the work reported in the article, since the majority of articles in the area of non-fatal suicidal behaviors cluster together individuals with suicide intent at the time of the act ('suicide attempters') and individuals with intentions different from wanting to die ('non-suicidal self-injury' and 'deliberate self-harm' episodes). Despite the fact that different types of intentions, each with a different degree of intensity, may be simultaneously present in the same individual at the time of an act of self-

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injury,[12] the identified sample in Jiang's study appears to be directly relevant to suicide attempts.

Despite the opinion of the authors, I do not think that manipulative intentions (i.e., with the goal of changing or controlling the behavior of others) should be considered surprising evidence from the research. When the level of education is low and interpersonal interactions are not particularly articulated or verbalized (as is common in rural environments), 'facts tend to speak louder than words'.[13] This interpretation seems to be confirmed by the relational problems that were often the reported cause of the suicidal behavior in the sample, by the inverse association of suicidal behavior with years of schooling, and by the fact that 78% of the identified individuals who attempted suicide were farmers. Also, 74% of the total sample was females, a percentage slightly higher than what is usually seen in western countries, where studies that include all sorts of non-fatal suicidal behaviors report a female:male ratio of 2:1 or even 1.5:1. Moreover, when samples include acts of greater severity, generally the proportion of male individuals grows and the ratio tends to become closer to 1:1 (see, for example, data collected in the historical WHO/EURO Multi-Centre Study on Suicidal Behaviour[14,15]). The 2.8:1 female:male ratio in this study of serious suicide attempts from rural China, seems to underline the cavalier attitude to suicidal behavior of rural females, even in its more serious forms.[7]

It is noteworthy that the number of refusals to participate – contrarily to most western studies – was extremely small (*n*=3). Imagining that authors paid all possible care in order to adopt a consecutive recruitment of subjects, this datum appears very different from what is usually obtainable in other research environments. Once again, the Chinese rural environment might also involve some unique characteristics; it is possible that the implementation of a research project in the emergency department of a rural hospital may evoke shyness or feelings of subjection in potential participants that results in uncontested participation in studies.

A global appraisal of the article by Jiang and colleagues identifies at least three really important aspects of the results: (a) the extremely common use of dangerous pesticides; (b) the high frequency of impulsive acts; and (c) the relatively low prevalence of psychiatric conditions. I have already briefly touched on points (a) and (c). Now I would like to consider the three different aspects as intimately intertwined, adopting as 'core business' the issue of impulsivity, which is a topic of increased attention internationally.[16] In fact, there is growing awareness that in a number of individuals the possibility of attempting suicide may develop very quickly, with little or no premeditation.[17,18] These individuals might not show typical aspects of suicidality such as depressive mood or hopelessness, and might be particularly difficult to intercept, thus limiting our capability to prevent their suicidal behaviors.[19] Impulsivity is a behavioral connotation, which can be present trans-nosographically (though Borderline Personality Disorder acknowledges impulsivity as central to its core concept). Its construct is still poorly defined and often confused or contaminated by that of aggression. In the paper by Jiang and colleagues, the awareness of these problems is particularly laudable, as demonstrated by the simultaneous use of questionnaires for both aggression and impulsivity (although only on a subsample of 132 subjects).

In this Chinese experience, the low proportion of depression and mental disorders as a whole emphasizes even more the big role of impulsivity. The agricultural context and the easy availability of lethal pesticides make the risk of fatalities particularly high. As pointed out by Phillips and colleagues,[5] many acts that end fatally in China would remain at the level of 'suicide attempt' in most western contexts, where pesticides are infrequently kept in homes, and where the density and technical capacity of resuscitation units is definitely higher.

China is today a financial super-power. I am confident that this economic transformation will gradually bring better living conditions, education, general health, and job and recreational opportunities to its rural citizens. In parallel with these spectacular improvements, I expect to see an ongoing decline in the rates of rural suicide.

Conflict of interest

The author reports no conflict of interest related to this manuscript.

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